

Technical Bulletin #88:

Rice Blast

The contents of this bulletin are based upon information taken with permission from the International Rice Research Institute (IRRI) Rice Knowledge Bank at www.knowledgebank.irri.org.

Nature and disease symptoms

Rice blast is one of the most important diseases of rice, caused by a fungus. The pathogen may infect all the aboveground parts of a rice plant at different growth stages: leaf, collar, node, internode, base, or neck, and other parts of the panicle, and sometimes the leaf sheath.

Leaf blast: An infected leaf has diamond- shaped or elliptical or spindle- shaped spots with gray or white centers and brown margins. The spots may merge leading to a complete drying of the infected leaf.

Collar blast: Lesion is located at the junction of the leaf blade and leaf sheath and can kill the entire leaf.

Node blast: The infected node rots causing all above parts to die.

Panicle blast: The infected panicle turns white and dies before being filled with grain.

Neck blast: Symptoms appear at the base of the panicle. Infected panicles appear white and are partly or completely unfilled. The whitehead symptoms can easily be confused with a stem borer attack which also results in a white and dead panicle.



Occurrence of blast

Rice blast is present wherever rice is cultivated and occurs with varying intensities depending on climate and cropping systems. Upland and rain fed environments in the tropics and subtropics, as well as irrigated

areas in temperate ecosystems having frequent and prolonged dew periods and cool day time temperatures are more favorable to the development of this disease.



Panicle blast



Neck blast



Severe blast damage

Factors favoring the disease

A number of factors favor the development of rice blast:

- Infested or diseased seeds.
- Excessive use of nitrogen.
- Poor air flow and poor sunlight penetration.
- Rainy days with high humidity.
- Cloudy skies, frequent rains, and drizzles.

Blast can be a major disease of both lowland and upland rice, under favorable conditions—for example, extended duration of leaf wetness, a high amount of nitrogen, and cool temperature.

In general, the severity of leaf blast epidemics is dependent on two key phases of the disease cycle: infection (a deposited pathogen spore infects a healthy leaf site) and sporulation (the amount of spores produced by a blast lesion over an infectious period).

Control of rice blast

Resistance varieties: host-plant resistance is, by far, the primary control option for blast, in spite of the difficulties this disease represents in developing durable and efficient resistances. Sen Pidao seems to be more resistant to rice blast than Phka Rumdoul. Good control of panicle blast can be achieved through interplanting rice varieties.

Crop management: split applications of nitrogen based on actual requirements of the crop are recommended to reduce disease intensity. The excessive use of nitrogen fertilizer promotes luxuriant crop growth, which increases the relative humidity and leaf wetness of the crop canopy, and so favors blast.

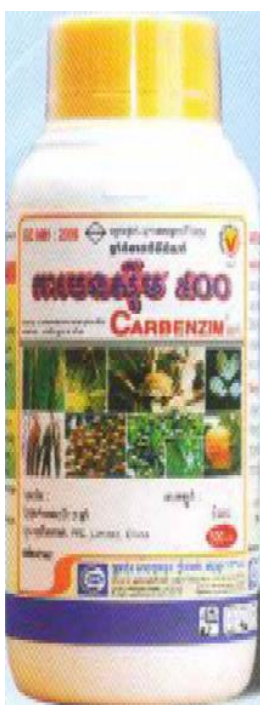
Flooding the soil as often as possible can be effective, particularly in tropical areas where conditions are not very favorable to blast.

Blast is sometimes present in certain areas for many seasons due to use of infected seeds and susceptible varieties (farmer saved seed). Farmers should be advised to change seeds and varieties.

Nurseries which have severe blast symptoms are best to be destroyed, preferably by burning. A new place for the nursery should then be selected to avoid contamination.

Chemical control: several fungicides have been developed to control blast. The use of fungicides with similar modes of action over extensive periods is not recommended because it has resulted in the emergence of resistant populations of the pathogen.

Recommended Fungicides



Carbendazim 500 FL (Carbendazim)
16-20 ml / tank of 16 l
3 tanks / 1000 m²
3 tanks / 1000 m²
Do not mix with other fungicides



Padavil 50FL (Carbendazim)
20-30 nl / tank of 16 l

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